

Notice of Allowability

Application No.

09/909,186

Examiner

Paul S. Hyun

Applicant(s)

TAJIMA, HIDEJI

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an Amendment after Final Rejection.
2. ☒ The allowed claim(s) is/are 25-33 and 35-45.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 6/26/06.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>6/28/06</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

REMARKS

In response to the previous Office Action, Applicant cancelled claims 1-24 and 34. Applicants also amended claim 25 to place the pending claims in condition for allowance.

In an interview conducted on June 23, 2006, Applicant agreed to an Examiner's Amendment to correct minor informalities as well as a 35 U.S.C. 112 issue in order to place the pending claims in condition for allowance. In the Examiner's Amendment, claims 25, 28 and 43 were amended. Claim 45 was also added.

Examiner's Amendment

25. (Currently Amended) A device comprising:
- a **transparent** tubular member having a liquid inlet/outlet and an opening;
 - a base member contained through the opening and disposed in the **transparent** tubular member;
 - a plurality of detection substances fixed to the base member wherein each detection substance comprises a predetermined chemical structure and is fixed to the base member at a predetermined fixed position;
 - a source of a liquid comprising at least one target substance;
 - a light shielding box wherein the **transparent** tubular member is disposed in the light shielding box;
 - a** means connected to the **transparent** tubular member at the opening for drawing liquid into the **transparent** tubular member from the source, and discharging the liquid from the **transparent** tubular member via the inlet/outlet; and
 - a** means positioned outside of the **transparent** tubular member for identifying the target substance after the target substance has reacted with a corresponding one of the detection substances fixed to the base member, the identifying means comprising:

a means for receiving emissions propagating through the wall of the transparent tubular member and from the predetermined fixed positions.

28. (Currently Amended) The device of claim 25 ~~further comprising a cylindrical structure having a longitudinal axis;~~

wherein the base member has a longitudinal length, and

an unrolled configuration in which:

the detection substances are arranged in a predetermined order along the longitudinal length of the base member; and

each pair of adjacent detection substances are spaced at a predetermined longitudinal spacing along the longitudinal length of the base member; ~~and~~

~~a rolled configuration in which:~~

~~the base member is rolled around the cylindrical structure to define a plurality of circumferentially extending rolls;~~

~~each pair of adjacent rolls in the plurality of circumferentially extending rolls are spaced at a predetermined axial spacing along the longitudinal axis of the cylindrical structure;~~

~~the base member is disposed in the tubular member;~~

~~each detection substance is exposed outwards at the corresponding predetermined fixed position relative to the outer surface of the cylindrical structure; and~~

~~each predetermined fixed position is defined by:~~

~~the predetermined order along the longitudinal length of the base member,~~

~~the predetermined longitudinal spacings along the longitudinal length of the base member, and~~

~~the predetermined axial spacings along the longitudinal axis of the cylindrical structure.~~

43. (Currently Amended) A device comprising:

a light shielding box;

a transparent tubular member disposed in the light shielding box;

a base member disposed in the transparent tubular member;

a plurality of detection substances fixed to the base member wherein each detection substance comprises a predetermined chemical structure and is fixed to the base member at a predetermined fixed position;

a means connected to the transparent tubular member for drawing liquid into the transparent tubular member and discharging the liquid from the transparent tubular member wherein at least one target substance is suspended in the liquid and reacts with the detection substances at the corresponding predetermined fixed positions; and

a means positioned outside of the transparent tubular member for identifying the target substance after the target substance has reacted with the detection substances, the identifying means comprising:

a means for irradiating excitation light through the wall of the transparent tubular member; and

a means for receiving emissions propagating through the wall of the transparent tubular member and from the predetermined fixed positions in response to the excitation light.

45. (New) The device of claim 25 further comprising a cylindrical structure having a longitudinal axis;

wherein the base member has:

a rolled configuration in which:

the base member is rolled around the cylindrical structure to define a plurality of circumferentially-extending rolls;

each pair of adjacent rolls in the plurality of circumferentially-extending rolls are spaced at a predetermined axial spacing along the longitudinal axis of the cylindrical structure; and

wherein the base member is disposed in the transparent tubular member such that:

each detection substance is exposed outwards at the corresponding predetermined fixed position relative to the outer surface of the cylindrical structure; and

each predetermined fixed position is defined by:

the predetermined order along the longitudinal length of the base member,

the predetermined longitudinal spacings along the longitudinal length of the base member, and

the predetermined axial spacings along the longitudinal axis of the cylindrical structure.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance:


Hirschfeld (US 4,447,546) discloses a fluorescent immunoassay device comprising an optical fiber situated inside a capillary tube. The optical fiber comprises reagents immobilized thereon for binding analytes tagged with fluorescent markers. The fluorescence stimulated by a light source is detected using a photodetector. However, the light source is situated above the capillary tube and directs the light into the longitudinal interior of the optical fiber in order to utilize the total internal reflection property of the optical fiber. Therefore, it would not have been obvious to one of ordinary skill in the art to provide a means connected to the capillary at the opening for drawing liquid into the tubular member and discharging the liquid from the capillary tube via the inlet/outlet of the capillary tube.

Heyneker et al. (US 6,057,100) disclose an oligonucleotide array comprising oligonucleotides immobilized on a fiber. However, the reference further disclose that the array can be dipped in a liquid sample containing analytes of interest in order to bind the analytes of interest. However, the reference does not disclose or suggest a tubular member surrounding the fiber further comprising a means for drawing and expelling liquid in and out of the tubular member.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul S. Hyun whose telephone number is (571)-272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Jill Warden
Supervisory Patent Examiner
Technology Center 1700

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PSH
6/23/06